The following charts and tables that support the nine key implementation factors can be found within the complete Project Red document and are copyright Greaves, T.; Hayes, J.; Wilson, L; Gielniak, M.' & Peterson, R., titled *The Technology Factor: Nine Keys to Student Achievement and Cost-Effectiveness*, MDR 2010.

Chart 3.2. 1:1 Schools experience greater savings

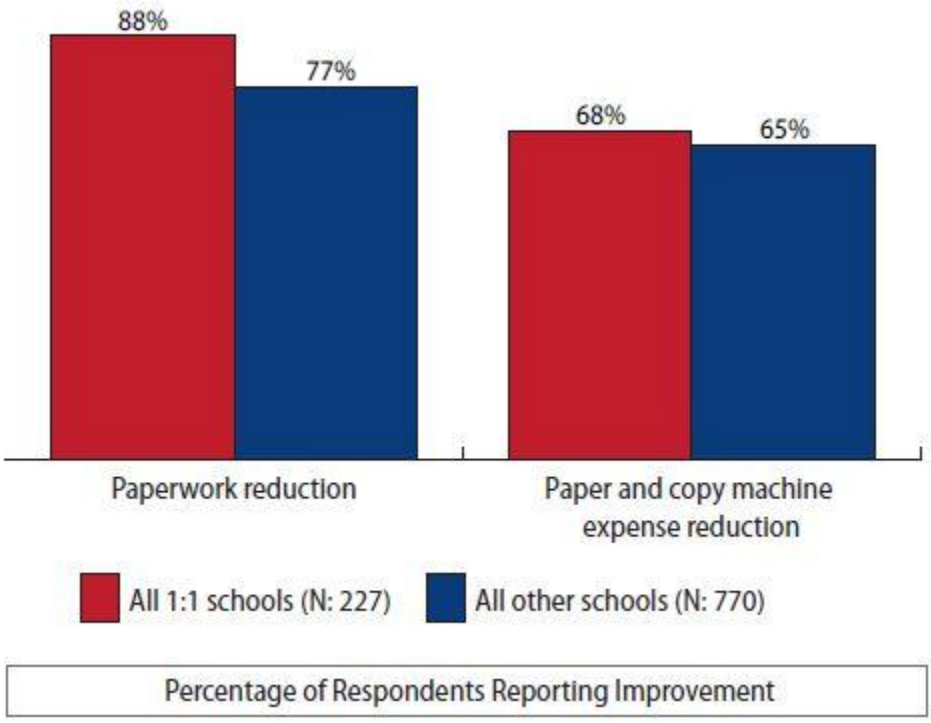


Chart 3.5. Technology-transformed intervention classes lead to education success

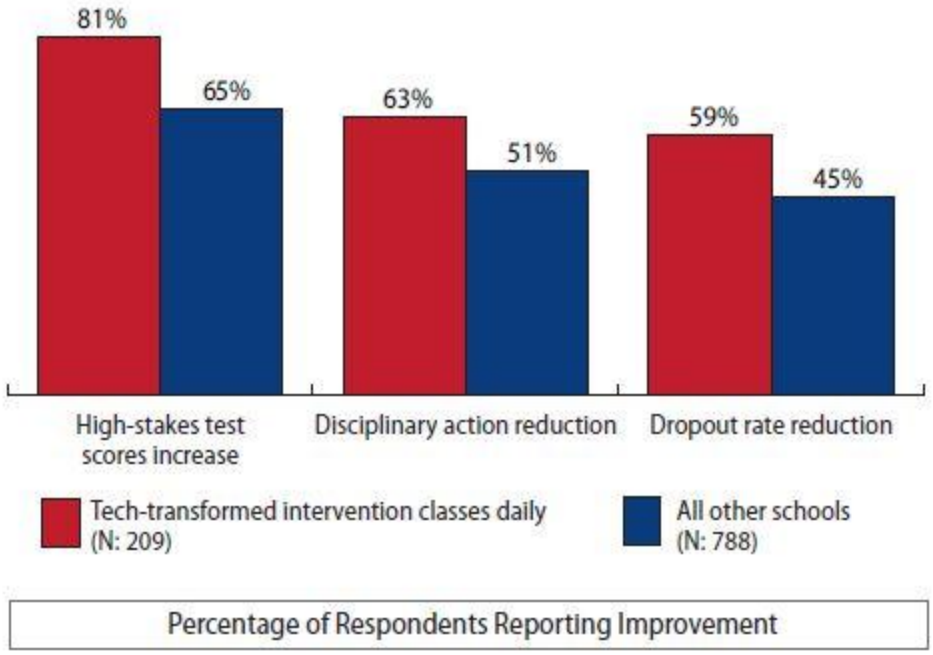


Chart 3.6. Online collaboration increases student engagement

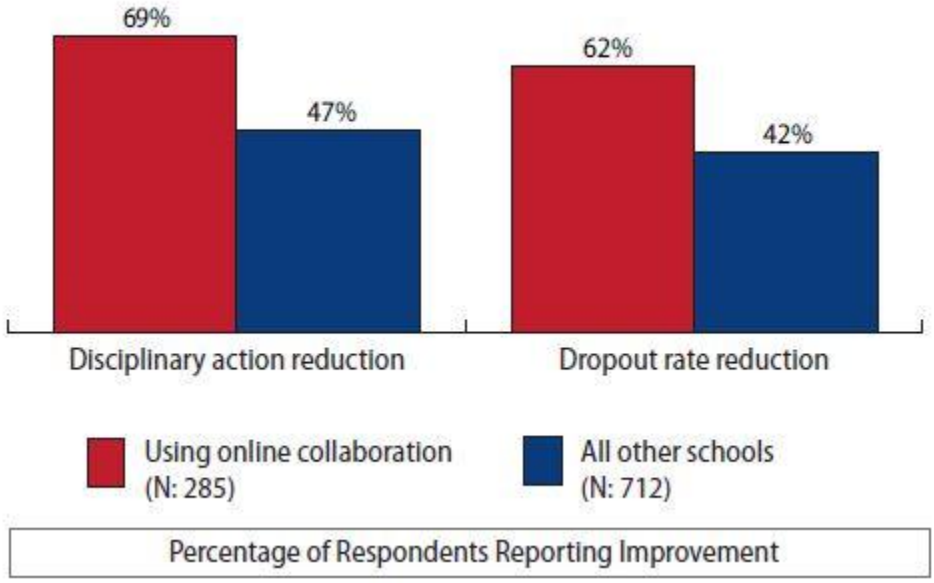


Chart 3.7. Use of digital content by 1:1 schools

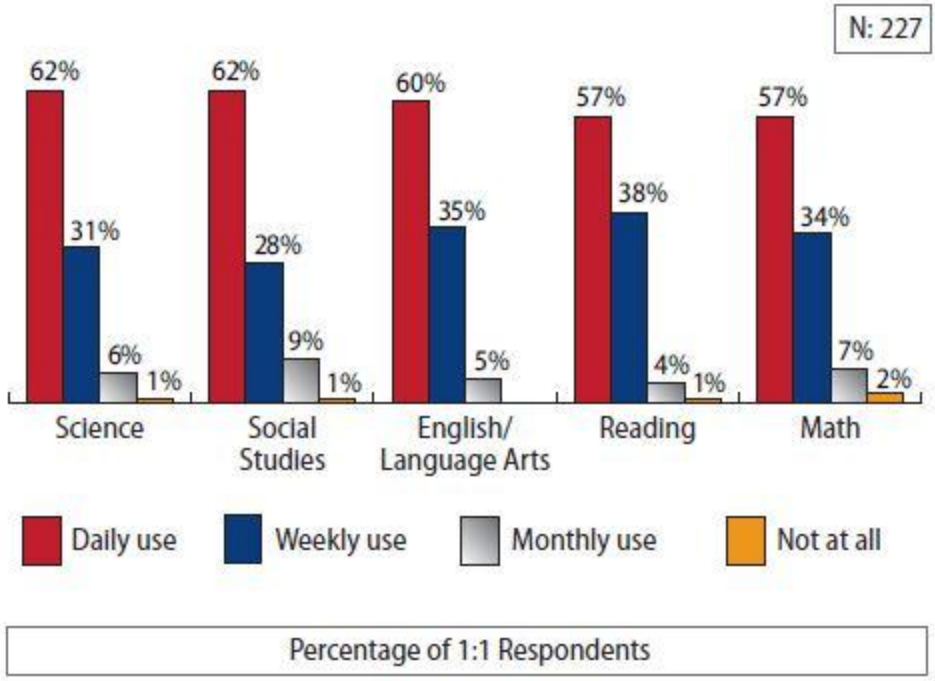
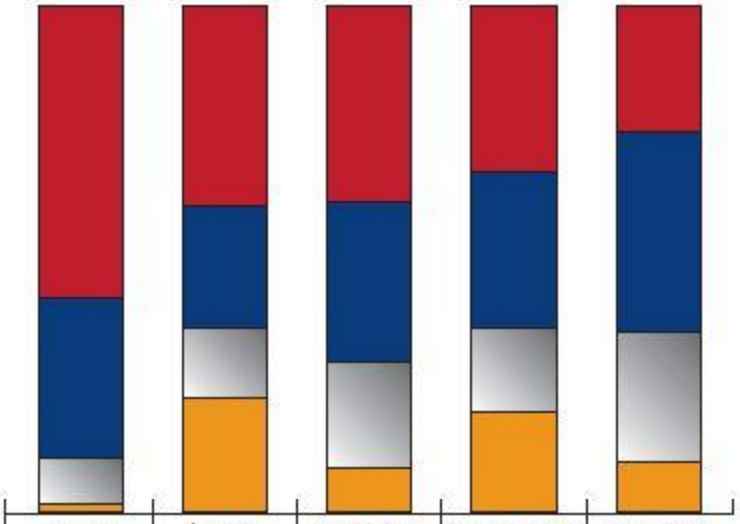


Chart 4.1. How frequently do you expect your students to use technology in the following activities? (Q17)

Technology Tools Used: Top 5 Principal's Frequency Expectations



Google or other search engines	Learning Management System (LMS) to receive assignments and submit homework	Collaboration with peers in own school	Communication with teachers via email, chat, or other electronic methods	Games and simulations	
55%	40%	39%	32%	25%	Daily use
32%	24%	32%	31%	40%	Weekly use
11%	14%	21%	17%	26%	Monthly/ semester use
2%	23%	9%	20%	10%	Not at all

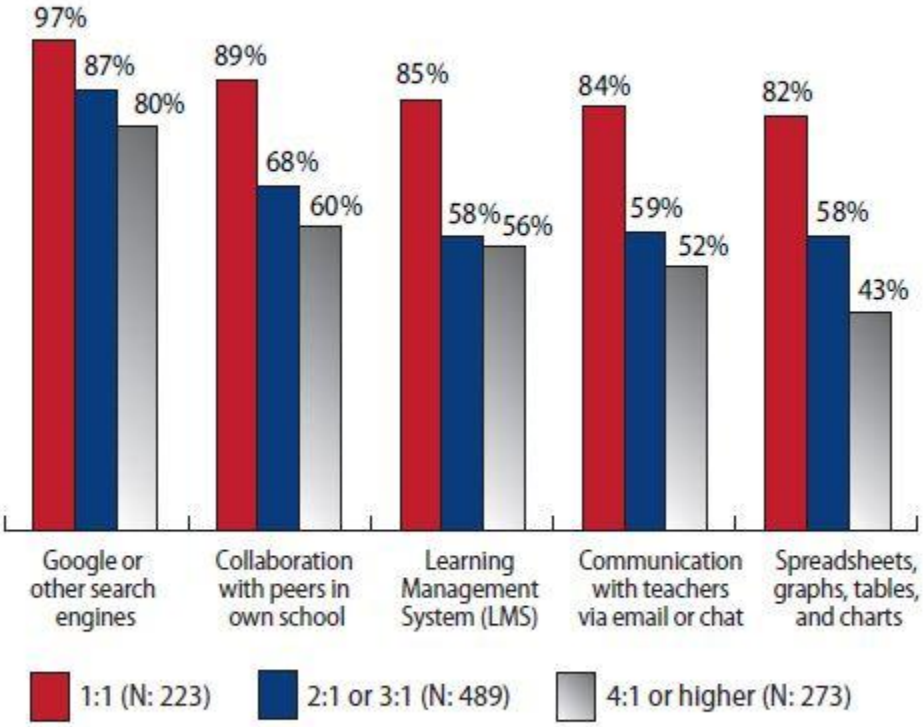
Percentage of Respondents

Table 4.1. Principal's expectations for technology use

Category	Daily Use (%)	Weekly Use (%)	Monthly/ Semester Use (%)	Not at All (%)
Spreadsheets, graphs, tables, and charts	22	37	35	5
Social media (e.g., blogs, tweets, wikis)	21	21	23	35
Student response systems (including clickers)	18	27	33	22
Collaboration with peers in any school	16	18	41	25
Online formative assessments	14	28	45	13
Online summative assessments	11	21	52	15
Virtual field trips	7	16	61	16

Chart 4.2. How frequently do you expect your students to use technology in the following activities? (Q17)

Technology Tools Used: Top 5 Principal's Frequency Expectations



Percentage of Respondents by Student-Computer Ratio Responding at Least Weekly

Table 4.2. Principal's expectations for student weekly use by student-computer ratio

Category	1:1 (%)	2:1 or 3:1 (%)	4:1 or Higher (%)
Games and simulations	75	62	62
Online formative assessments	62	40	28
Social media (e.g., blogs, tweets, wikis)	61	38	32
Student response systems (including clickers)	53	46	37
Online summative assessments	46	31	23
Collaboration with peers in any school	41	33	28
Virtual field trips	32	20	20

Chart 4.8. Describe the principal's role as the leader of the technology initiative. (Q20)

Principal's Leadership in Technology Initiative

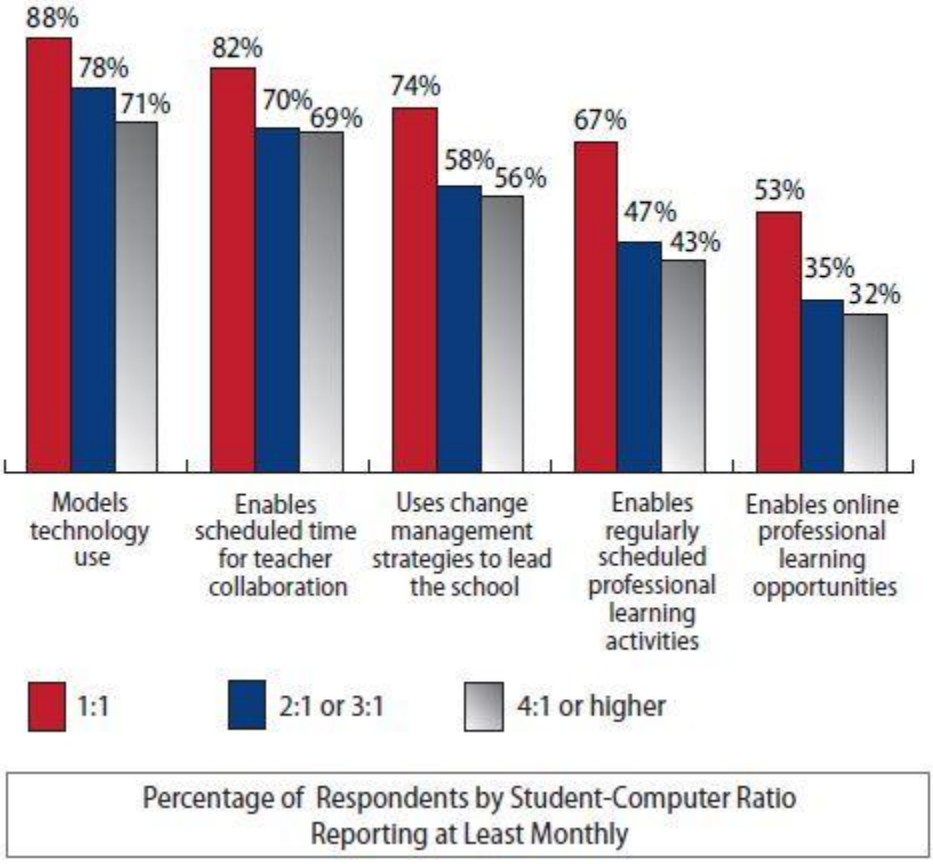


Chart 5.6. On average over the past year, what percentage of the school day is your instructional network up for student and teacher use? (Q23)

Systems Reliability

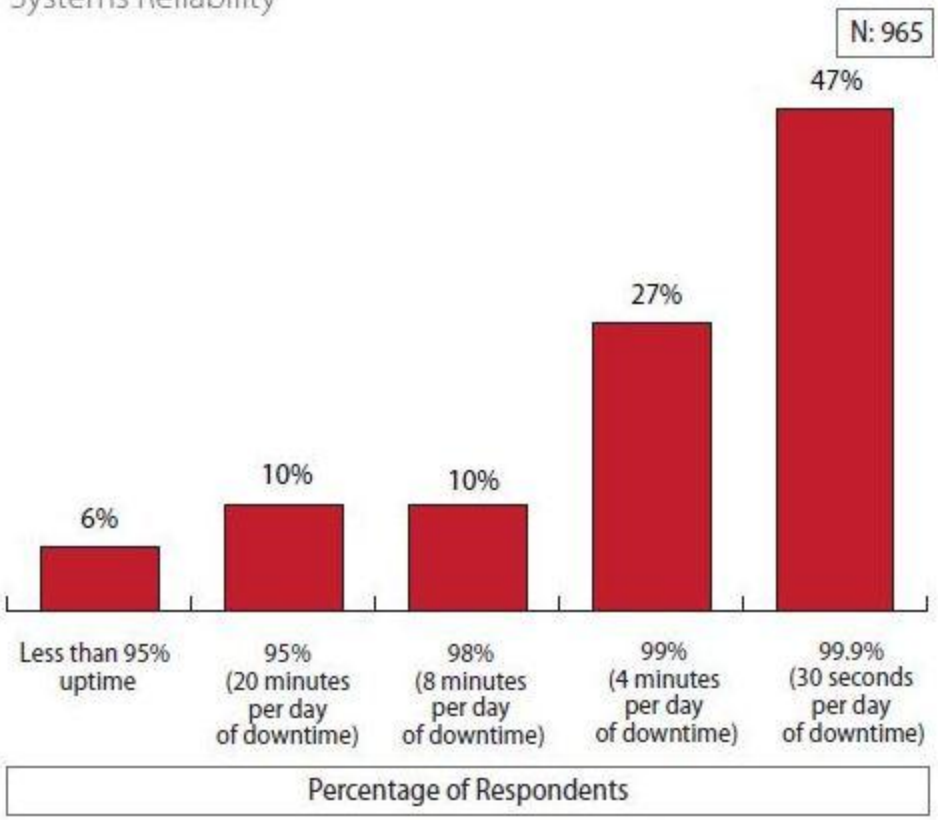


Chart 5.7. On average over the past year, what percentage of the school day is your instructional network up for student and teacher use? (Q23)

Systems Reliability of Instructional Network

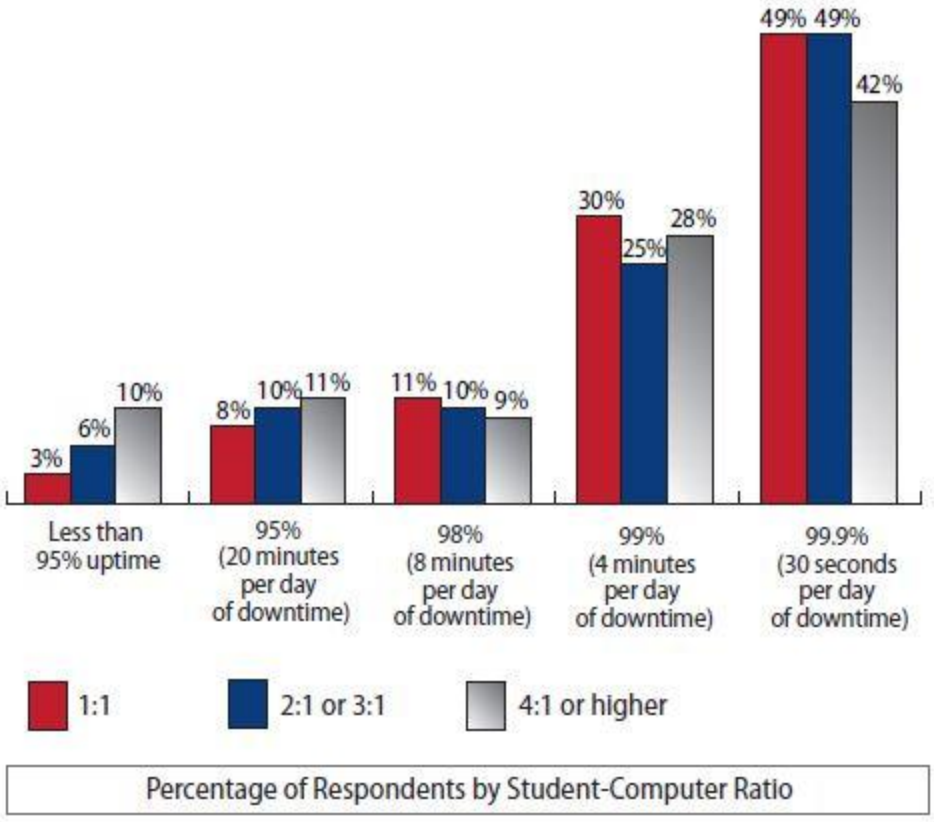


Chart 5.8. Is your instructional network accessible to teachers, students, and parents? (Q24)

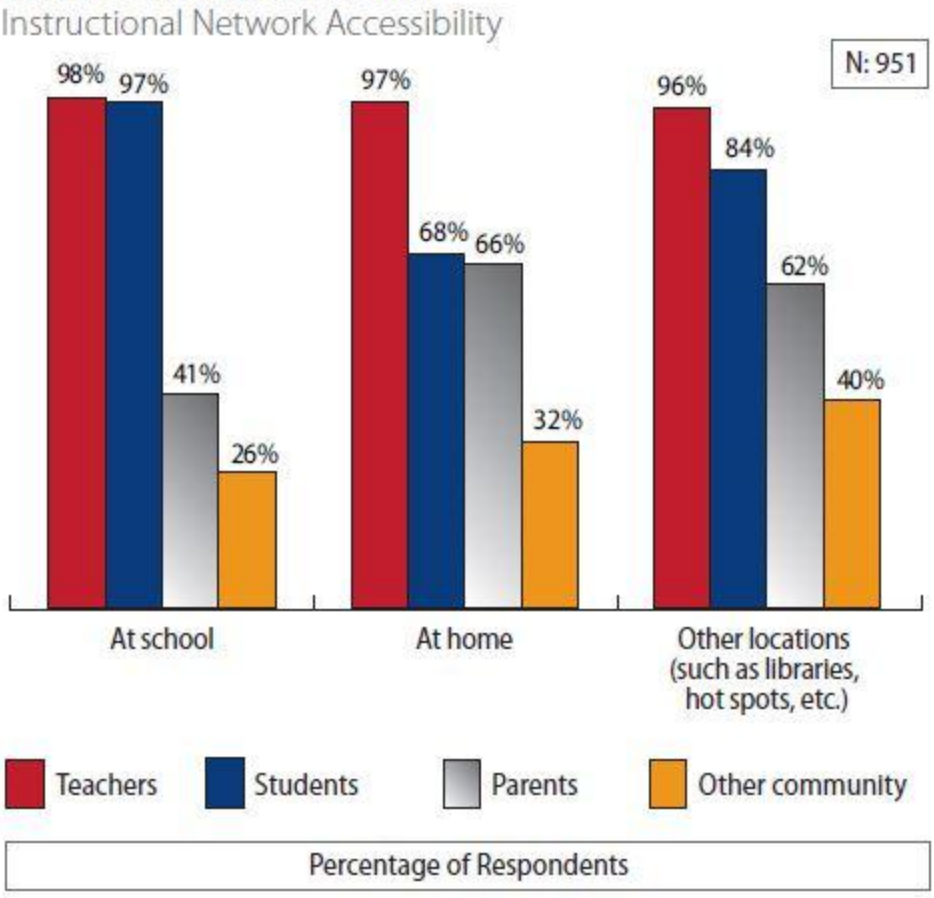


Chart 5.12. How fast is the speed of your Internet connection to your classrooms? (Q25)

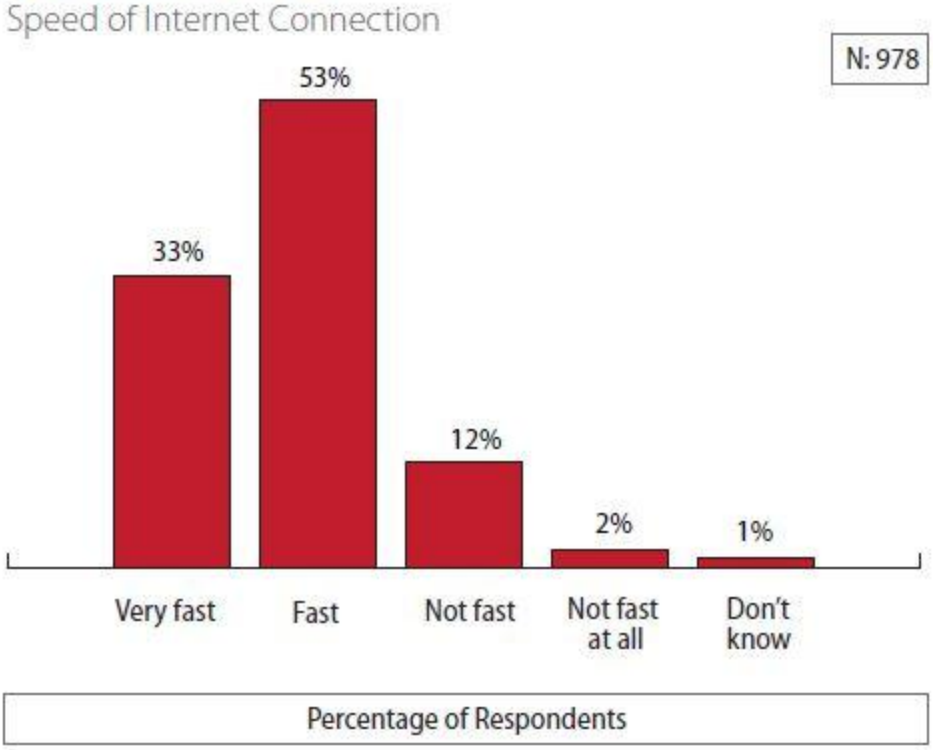


Chart 5.13. How fast is the speed of your Internet connection to the classroom? (Q25)

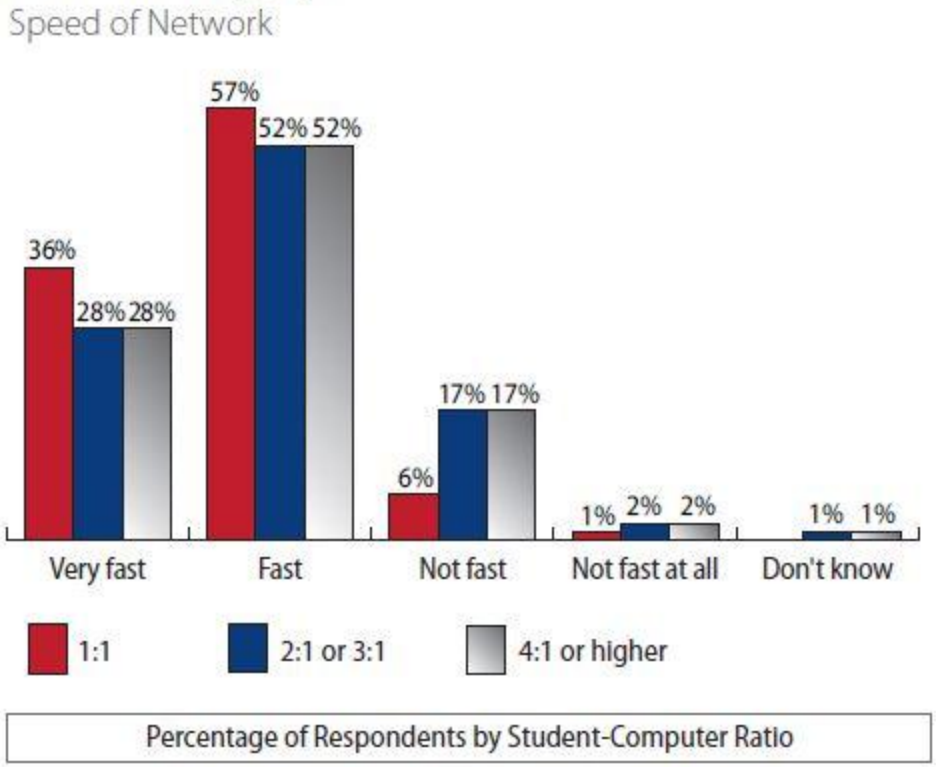
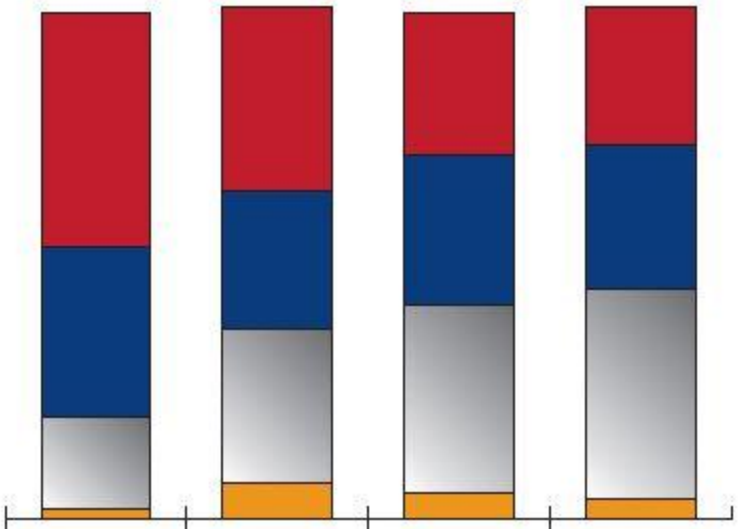


Chart 6.1. How do teachers and students in your school use technology in instruction? (Q16)

Learning Activities: Frequency of Use

N: 988



	Teachers spend more time on small-group instruction than on lectures	Students use a wide range of electronic materials	Students use problem-based learning	Students take control of their learning, including choosing research topics
Daily use	46%	36%	28%	27%
Weekly use	33%	27%	29%	28%
Monthly/ semester use	18%	30%	37%	41%
Not at all	2%	7%	5%	4%

Percentage of Respondents

Chart 6.3. How frequently do your students use technology as an integral part of instruction? (Q9)

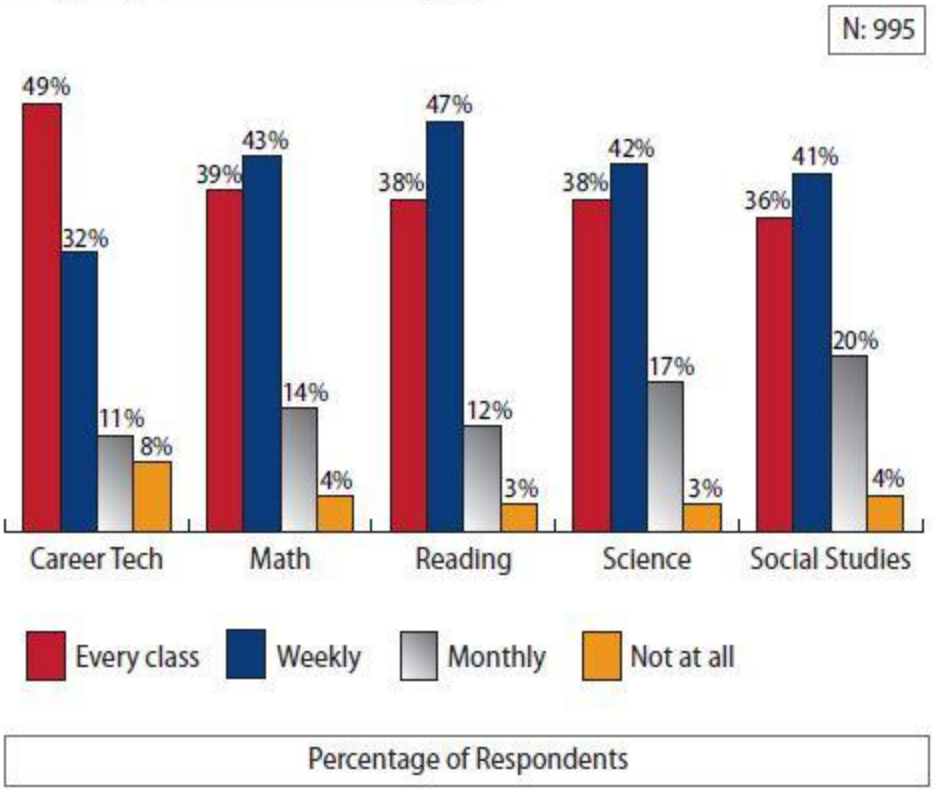
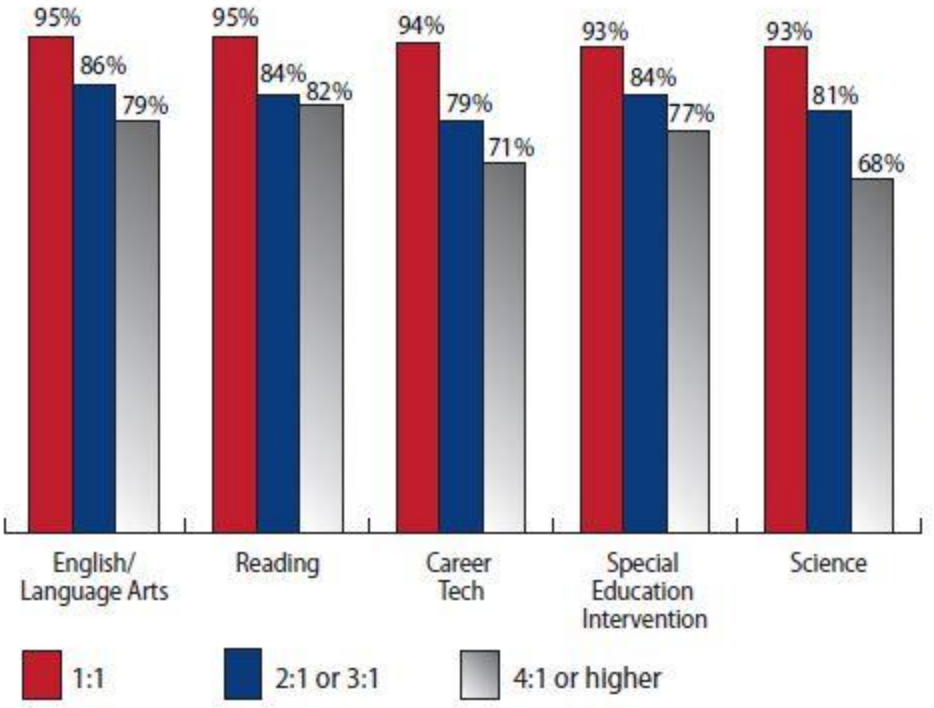


Chart 6.4. How frequently do your students use technology as an integral part of instruction? (Q9)

Technology Integration by Subject Area: Top 5



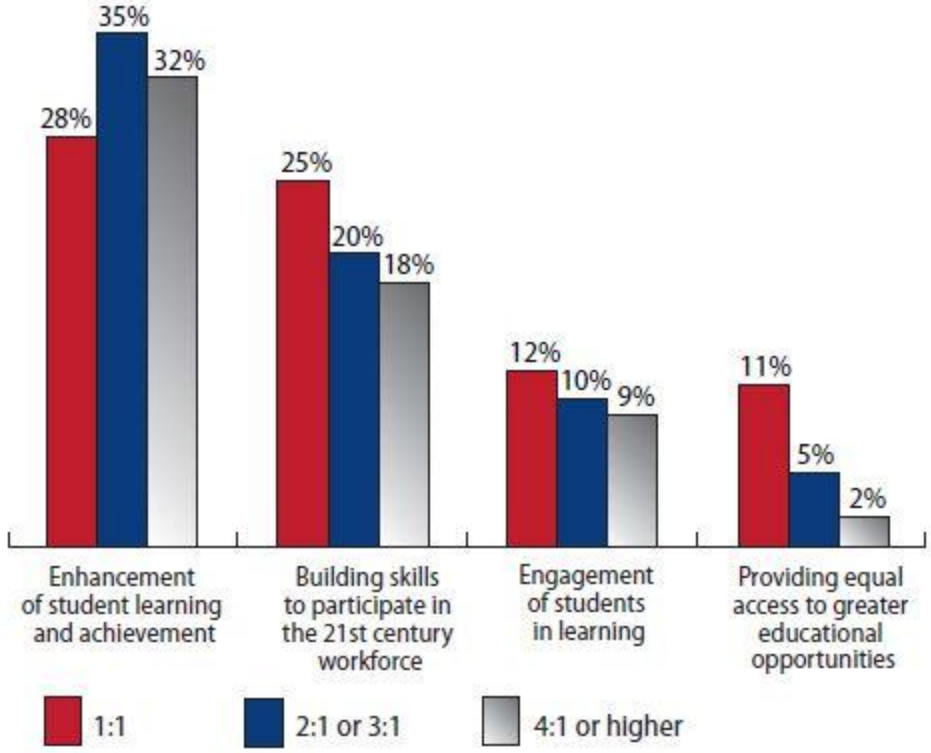
Percentage of Respondents by Student-Computer Ratio Reporting Use at Least Weekly

Table 6.2. Findings for lower-ranked weekly use of technology by subject and student-computer ratio (in rank order)

Subject	1:1 (%)	2:1 or 3:1 (%)	4:1 or Higher Ratio (%)
Math	91	80	77
Social Studies	91	76	67
Title I Intervention	90	81	75
ELL Intervention	88	73	63
Reading Intervention	87	81	73
World Languages	81	63	51
Art	66	46	37
Music	56	40	35
Health/PE	54	26	8

Chart 6.6. What was the original impetus for your technology initiative? (Q10)

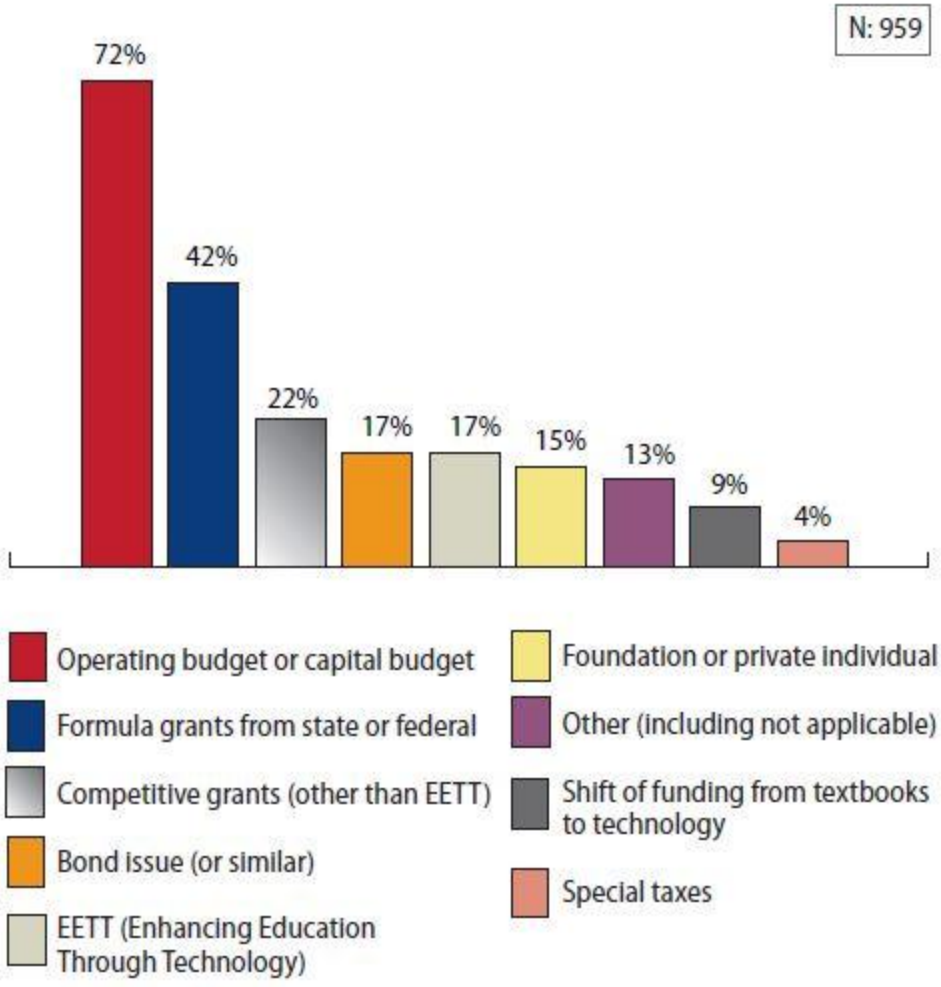
Impetus for Technology Initiative: Top 4 Reasons



Percentage of Respondents by Student-Computer Ratio
Only One Answer Allowed

Chart 6.7. How was your technology initiative funded? Check all that apply. (Q11)

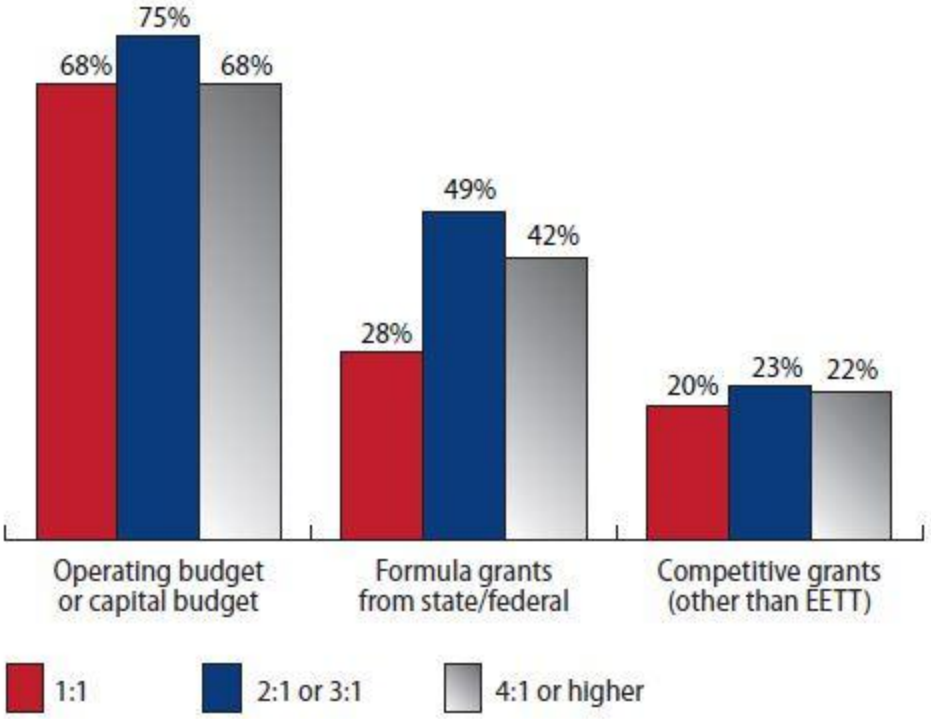
Funding Sources for Technology Initiative



Percentage of Respondents – Multiple Answers Allowed
(Average of 2.1 answers per respondent)

Chart 6.8. How was your technology initiative funded? Check all that apply. (Q11)

Funding Sources for Tech Initiative



Percentage of Respondents by Student-Computer Ratio
Multiple Answers Allowed (Average of 2.1 answers per respondent)

Table 6.5. Funding sources for tech initiative

Funding Source	1:1 (%)	2:1 or 3:1 (%)	4:1 or Higher (%)
Operating budget or capital budget	68	75	68
Formula grants from state/federal	28	49	42
Competitive grants (other than EETT)	20	23	22
Bond issue (or similar)	14	17	19
Shift of funding from textbooks	13	9	6
EETT	11	20	15
Foundation or private individual	10	16	16
Special taxes	4	5	3

Chart 6.9. Indicate what percentage of parents participated in face-to-face meetings or training on their role in helping the technology initiative. (Q12)

Parental Participation: Meetings or Training on Technology Initiative

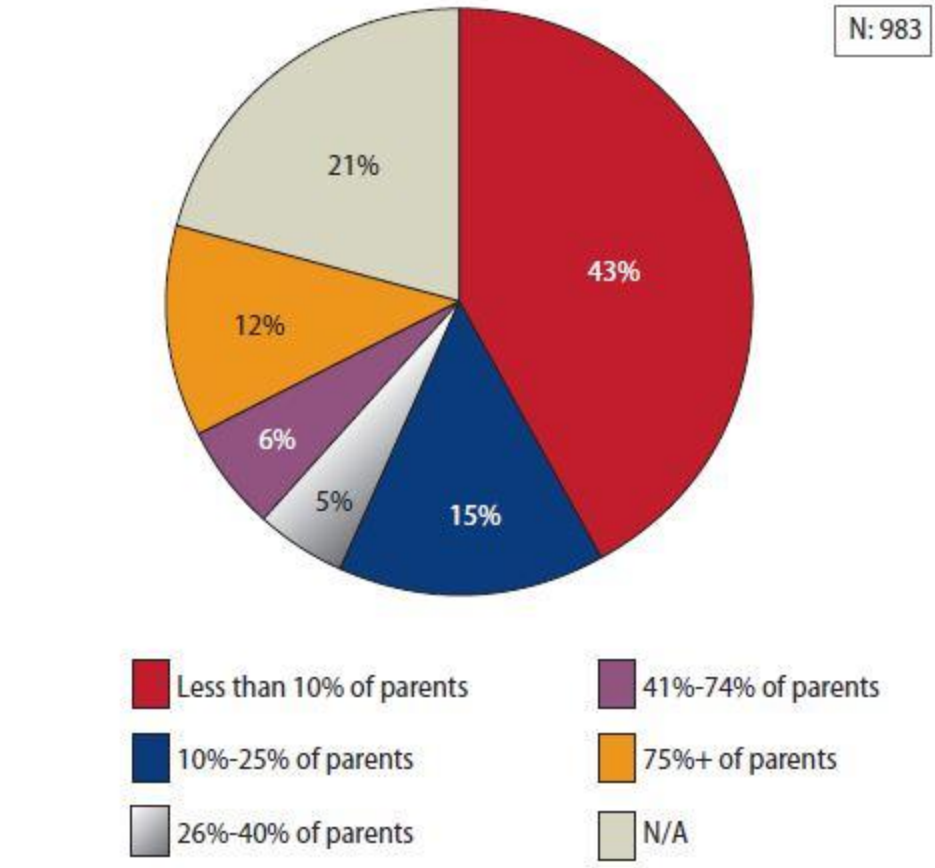


Chart 6.11. Indicate when teachers were issued a computing device as compared with students. (Q13)

Teacher Access to Computers Compared With Student Access

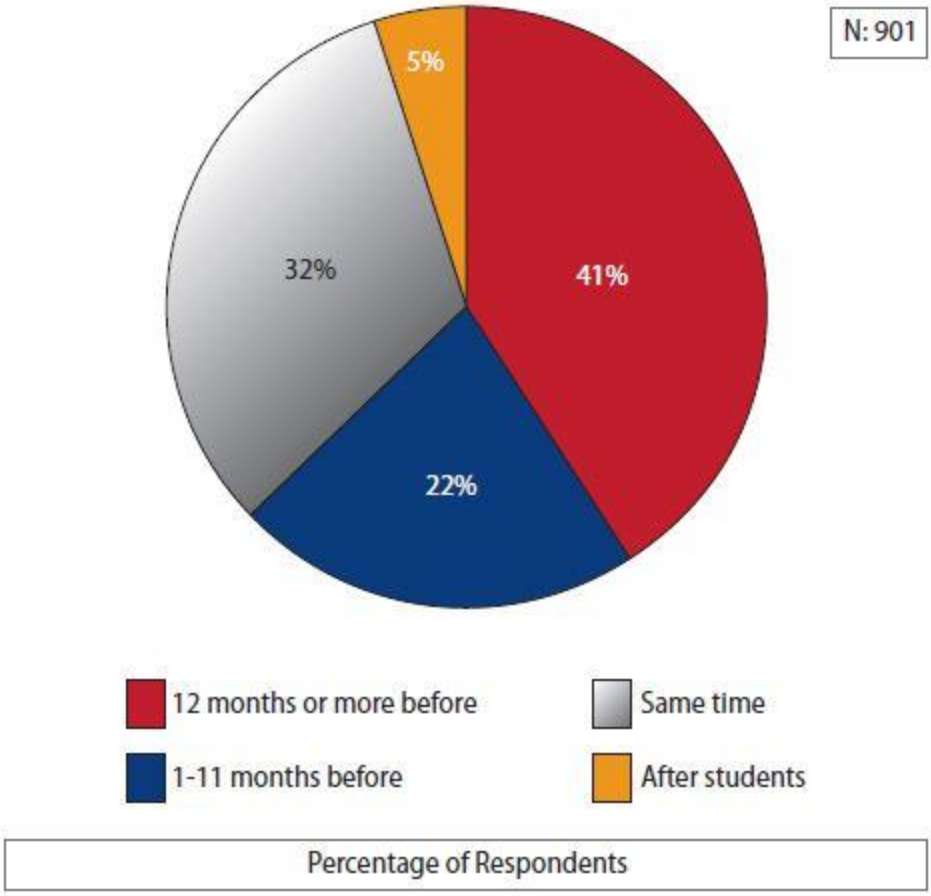


Chart 6.12. Indicate when teachers were issued a computing device as compared with students. (Q13)

Timing of Teachers Receiving Computing Device

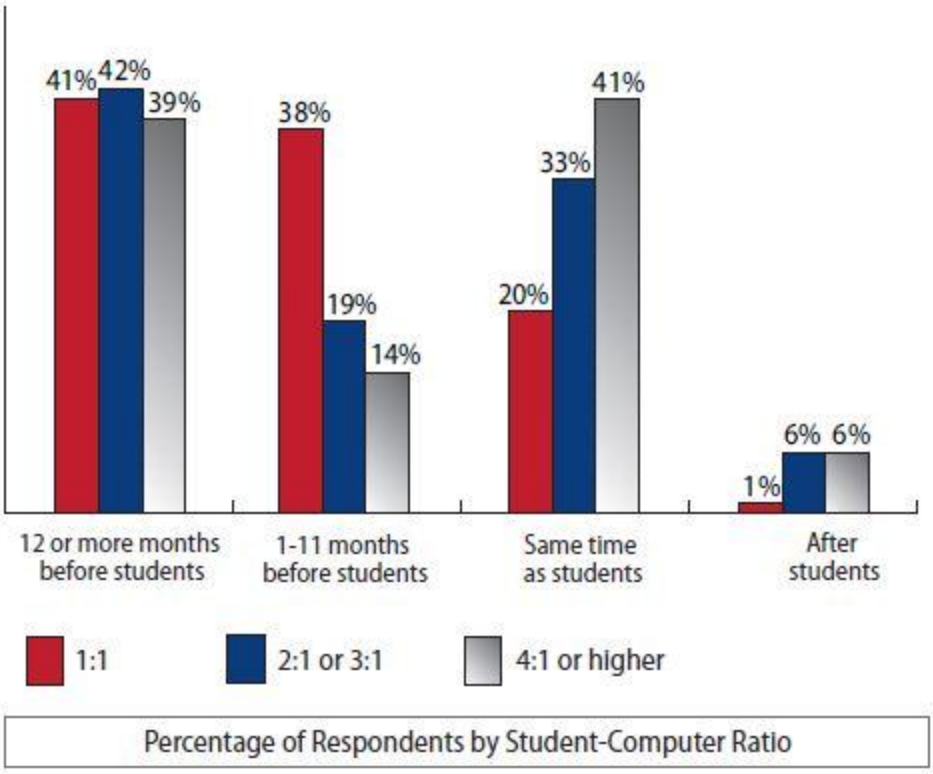
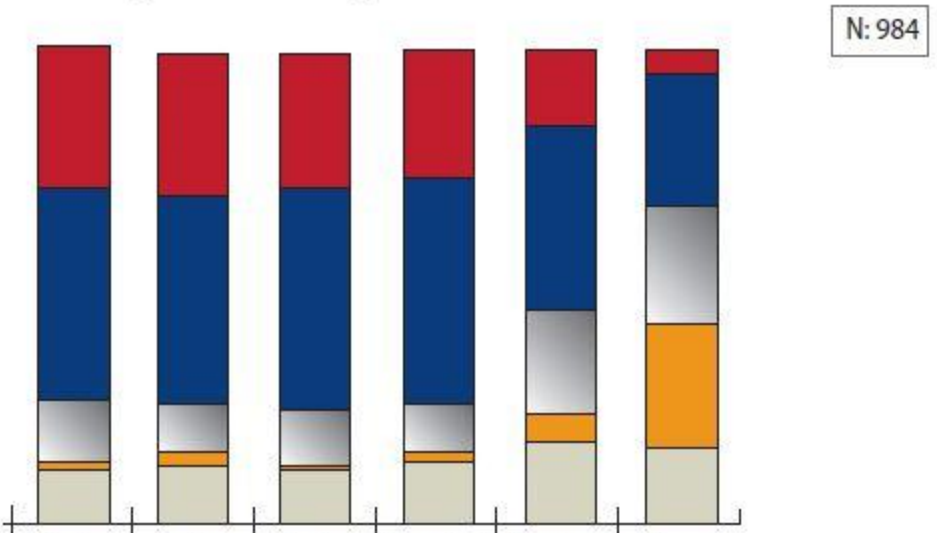


Chart 6.13. How well did your technology implementation plan address each of the following? (Q14)

Assessing the Technology Plan's Effectiveness



	Teacher training	Teacher buy-in	Service and support	Instructional network	Long-term funding	Parent training
Very well	30%	30%	28%	27%	16%	5%
Adequately	45%	44%	47%	48%	39%	28%
Not well	13%	10%	12%	10%	22%	25%
Not addressed	2%	3%	1%	2%	6%	26%
Don't know: I wasn't part of the plan	11%	12%	11%	13%	17%	16%

Percentage of Respondents

Chart 6.14. How well did your technology implementation plan address each of the following? (Q14)

Implementation of Tech Initiative

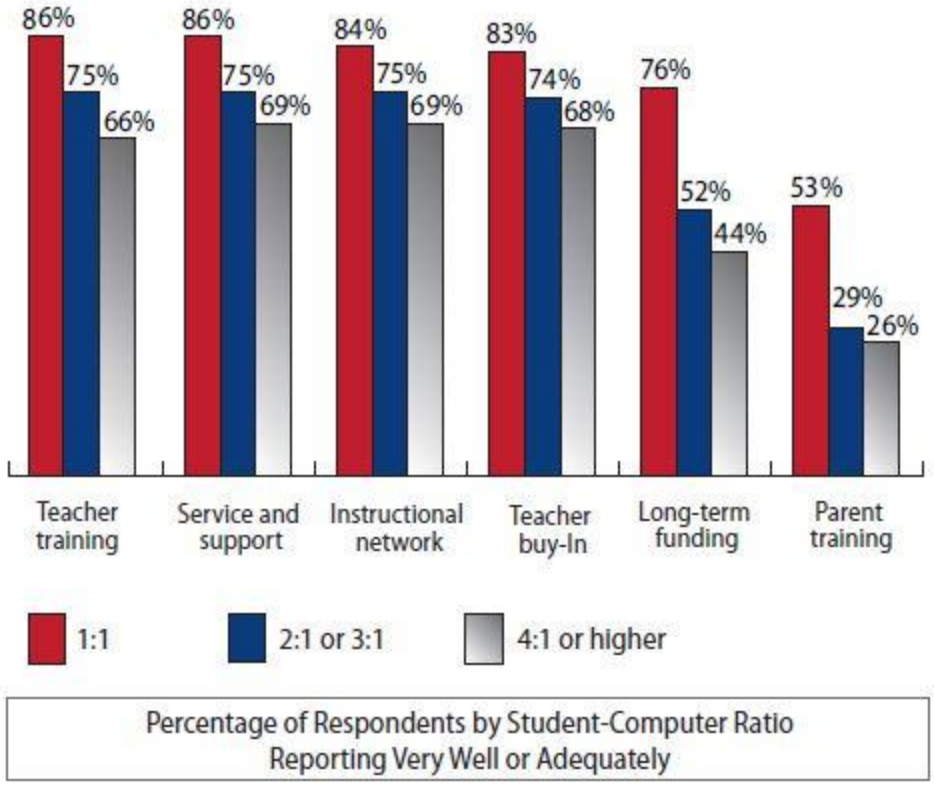


Chart 6.15. For how long do you think your program is sustainable? (Q15)

Sustainability of Program

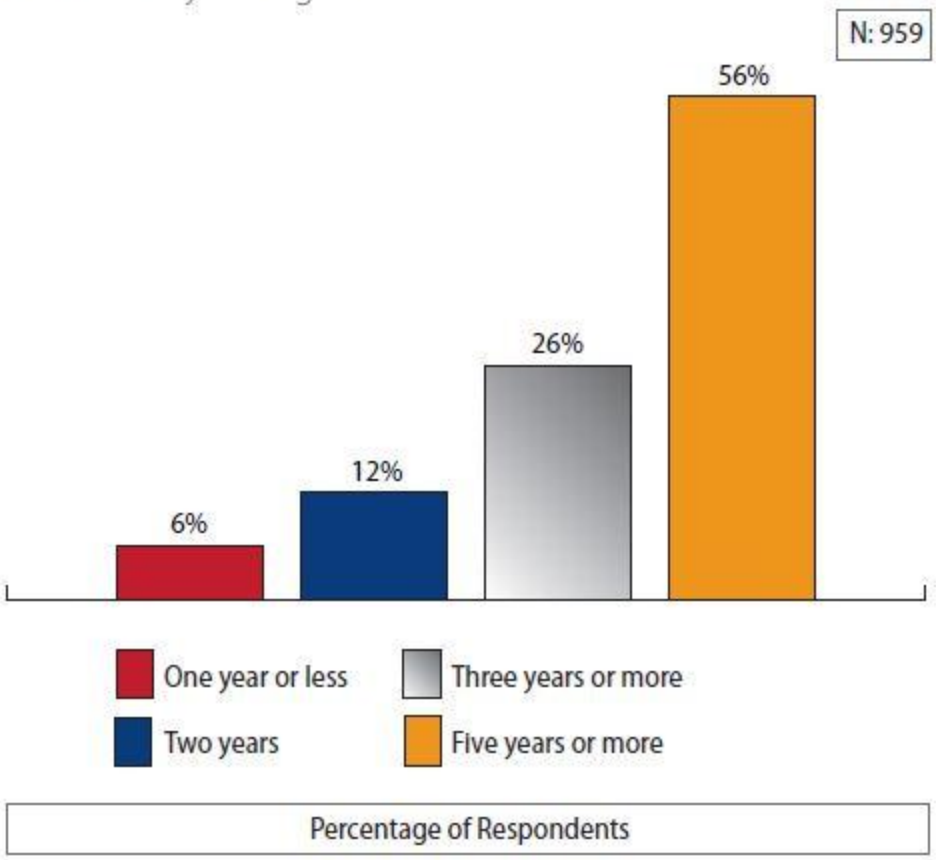
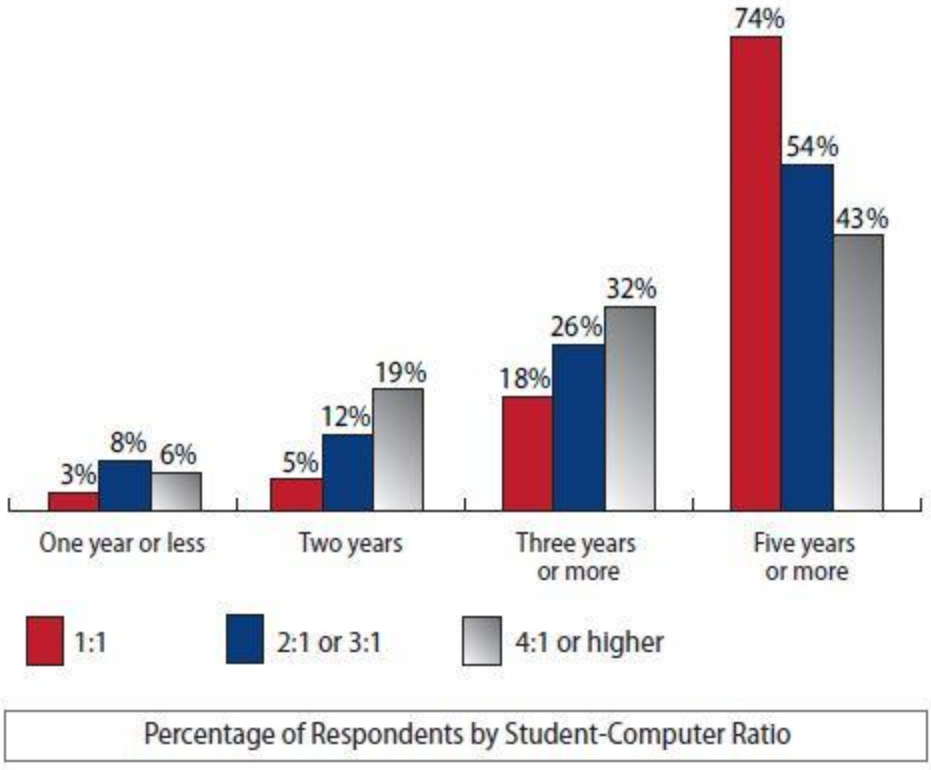


Chart 6.16. For how long do you think your program is sustainable? (Q15)

Sustainability of Tech Initiative



Percentage of Respondents by Student-Computer Ratio

Chart 7.2. How has ubiquitous technology changed the following? (Q26)

Impact of Technology in Schools: High Schools Only

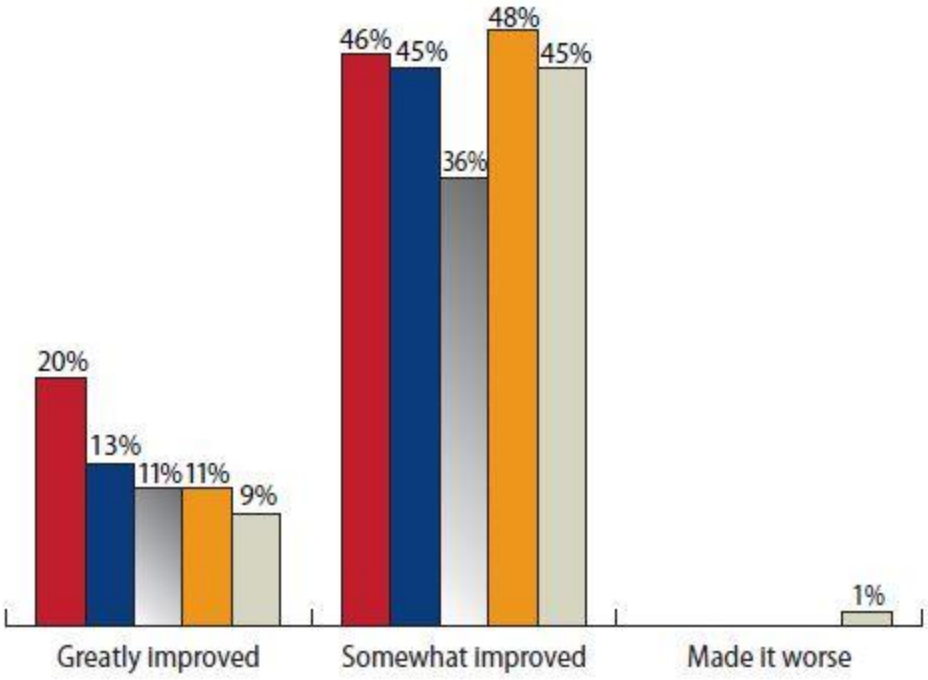
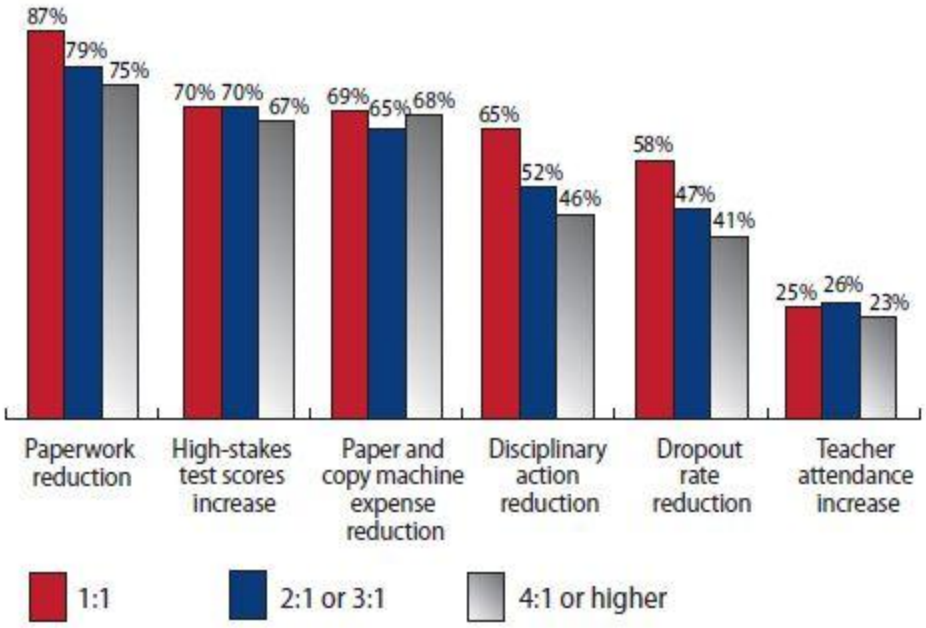


Chart 7.3. How has ubiquitous technology changed the following? (Q26)

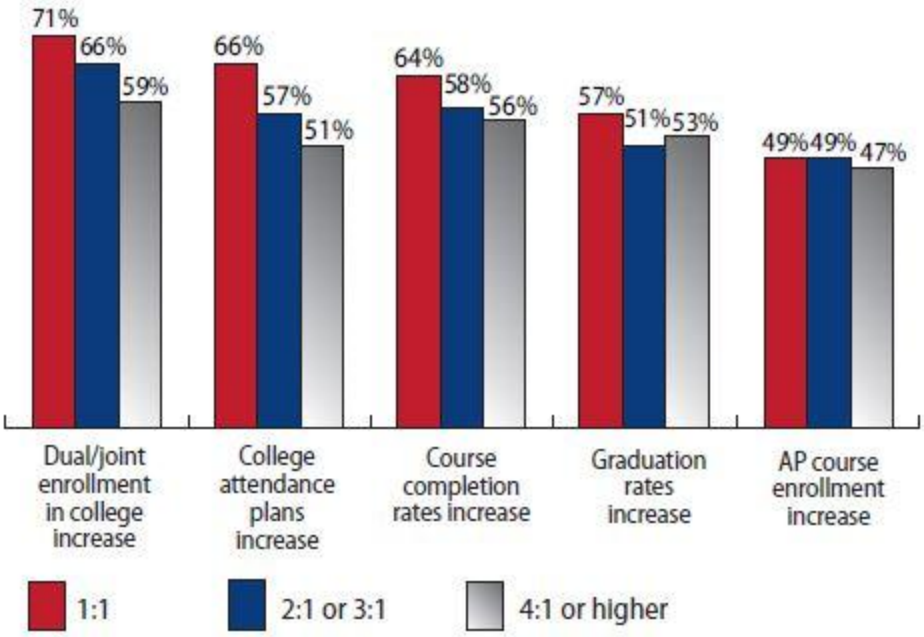
Improvements Due to Technology Deployment:
All Schools by Student-Computer Ratio



Percentage of Respondents by Student-Computer Ratio Reporting Improvement

Chart 7.4. How has ubiquitous technology changed the following? (Q26)

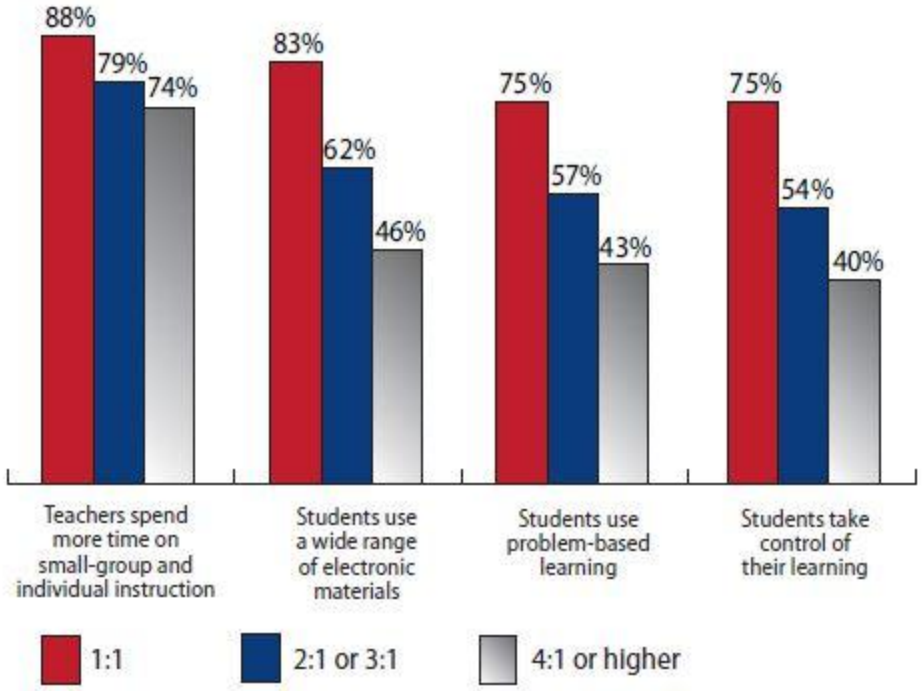
Improvements Due to Technology Deployment:
High Schools by Student-Computer Ratio



Percentage of Respondents by Student-Computer Ratio
With High School Grades Reporting Improvement

Chart 8.1. How do teachers and students in your school use technology in instruction? (Q16)

Learning Activities: Students and Teachers



Percentage of Respondents by Student-Computer Ratio Responding at Least Weekly

Table 8.1. Drivers of improving high-stakes test scores

High-Stakes Test Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	24.6
Instructional Network Available at Home and LMS Daily	19.8
Principal Training Exists	14.1
Daily Games, Social Media	13.1
Principal's Role in Technology	11.6
Online Assesments	8.7

Relative Importance Scale

1 — 12 — 25

Less Influential — More Influential

Table 8.2. Drivers of improving discipline

Discipline Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	24.4
Collaboration Between Students	22.1
Daily Use of Technology in Core Classes	15.4
Principal Training Exists	11.7
Virtual Field Trips	6.3
Tech Implementation Effectiveness	5.3

Table 8.3. Drivers of improving dropout rates

Dropout Rate Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	32.6
Weekly External Collaboration	14.2
Daily Use in Technology Core Classes	13.1
Principal's Role in Technology	10.9
Daily Games, Social Media	9.6
Virtual Field Trips	9.2

Table 8.5. Use of electronic materials

Student-Computer Ratio	% of Respondents Reporting That Students Use a Wide Range of Electronic Materials[3]
1:1	83
2:1 or 3:1	62
4:1 or higher	46

Table 8.6. Drivers of improving graduation rates

Graduation Rate Improvement by Predicted Model Quintile

Description	Relative Importance
Monthly Collaboration With Students Outside School	17.4
Technology Intervention Classes	15.4
Daily Search Engines	13.4
Instructional Network Available at Home	9.9
Frequent Virtual Field Trips	9.5
Daily Communication Via Technology	9.4

Table 8.7. Use of problem-solving skills

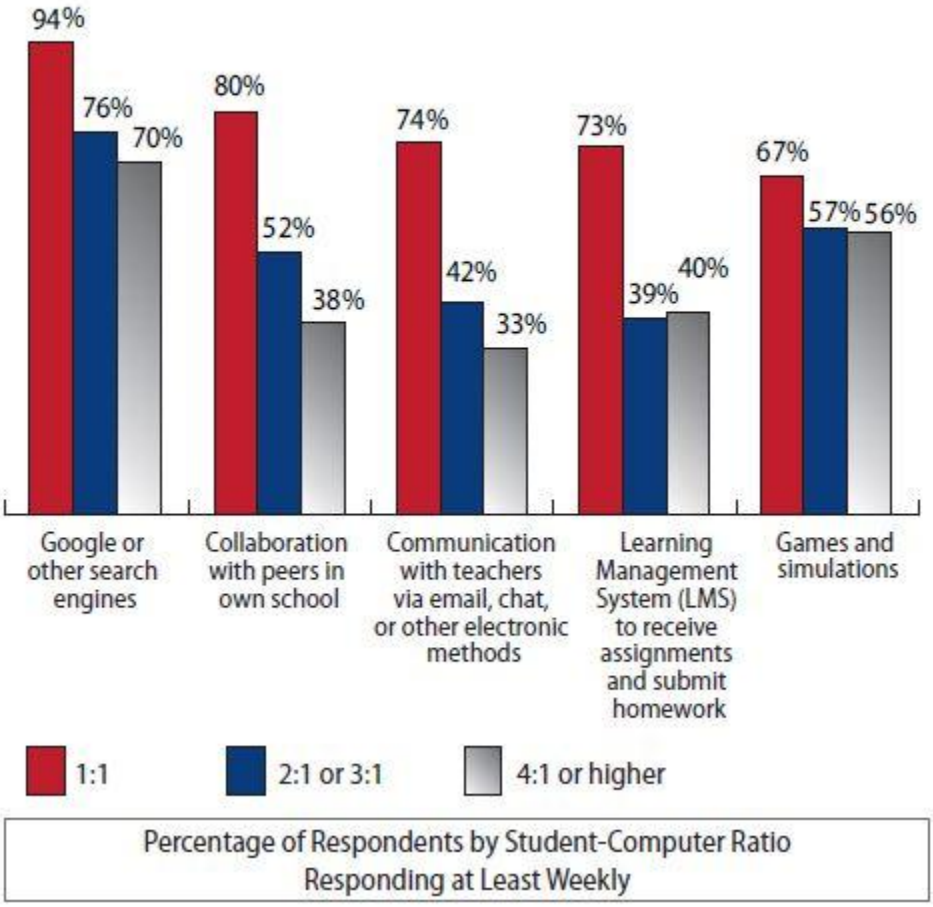
Student-Computer Ratio	% of Respondents Reporting That Students Use Problem-Based Learning
1:1	75
2:1 or 3:1	57
4:1 or higher	43

Table 8.8. Email and chat with teachers

Student-Computer Ratio	% of Respondents Reporting Student Communication With Teachers Via Email and Chat
1:1	74
2:1 or 3:1	42
4:1 or higher	33

Chart 8.2. How frequently do students actually use technology in the following activities? (Q18)

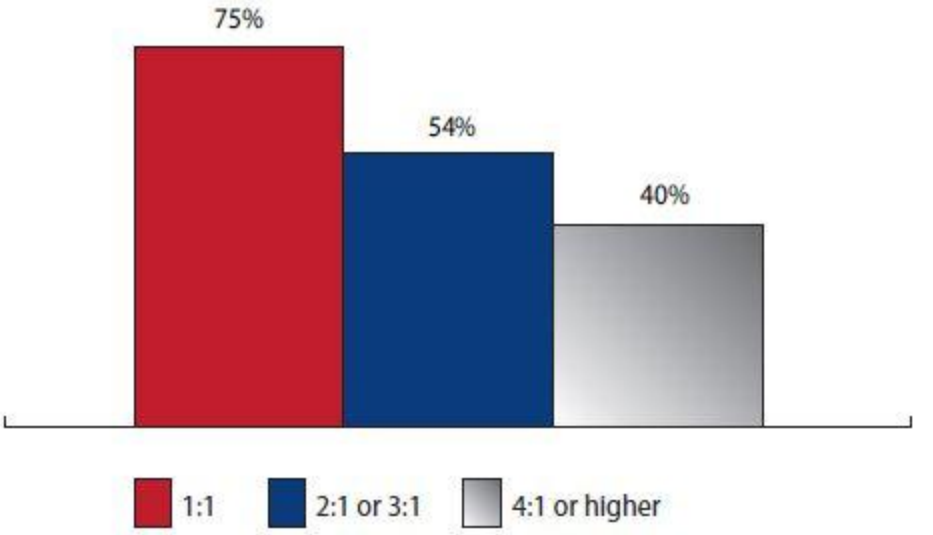
Technology Tools Used: Actual Use Estimated – Top Five



Percentage of Respondents by Student-Computer Ratio Responding at Least Weekly

Chart 8.3. Indicate how teachers and students in your school use technology in instruction. (Q16)

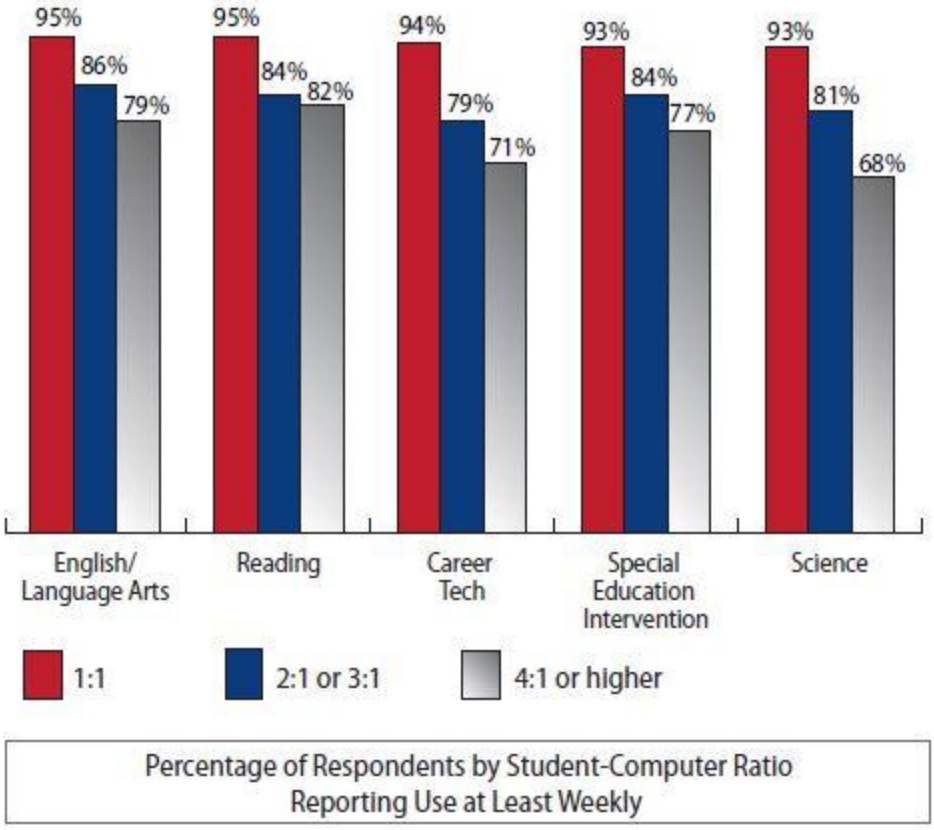
Students Take Control of Their Learning



Percentage of Respondents by Student-Computer Ratio Reporting at Least Weekly

Chart 8.4. How frequently do your students use technology as an integral part of instruction? (Q9)

Technology Integration by Subject Area: Top 5



Percentage of Respondents by Student-Computer Ratio Reporting Use at Least Weekly